

# TEAC

D00337800A

## SERVICE MANUAL

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# T-H500

## AM/FM STEREO TUNER

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### NOTES

- PC boards shown are viewed from parts side.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- ⚠ Parts marked with this sign are safety critical components.  
They must be replaced with identical components- refer to the appropriate parts list and ensure exact replacement.
- Parts of [ ] mark can be used only with the version designated.  
[DM]: JAPAN [E]: EUROPE



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## Specifications

### FM Section

Tuning Range : 87.50MHz~108.00MHz  
(50KHz steps)(EUR)  
76.0MHz~90.0MHz  
(100KHz steps)(DM)

Usable Sensitivity (IHF): Mono : 10dB $\mu$ V(EMF)  
50dB Quieting Sensitivity :  
Mono : 20dB $\mu$ V(EMF)  
Stereo : 40dB $\mu$ V(EMF)

Image Rejection Ratio : 70dB

Frequency Responses : 20Hz~15KHz,  
+0.5dB/ -3dB

Distortion (at 60dB $\mu$ V)  
Mono : 0.15%, Stereo : 0.3%

Signal-to-Noise Ratio (at 65dBf, 1KHz) :  
Mono : 70dB  
Stereo : 65dB

AM suppression Ratio : 55dB

Stereo Separation (1KHz) : 40dB

Output (Level/Impedance) : 1.2V/2.2Kohm

### AM Section

Tuning Range : 522KHz~1620KHz  
(9KHz steps)

Usable Sensitivity : 55dB/m

Selectivity : 55dB (at  $\pm$ 9KHz)

Image Rejection Ratio : 35dB

Distortion : 1% (at 85 dB/m)

Signal-to Noise Ratio : 40dB (at 85 dB/m)

Output (Level/Impedance) : 270mV/2.2Kohm

### General

Power Requirements : 230V AC, 50Hz(EUR)  
100V AC, 50/60Hz(DM)

Power Consumption : 8W(EUR)  
7W(DM)

Dimensions(W×H×D) : 285×101×312m/m

Weight(net) : 3.0Kg

### Accessories

AM Loop Antenna×1, FM Antenna×1  
RCA pin plug cord×1,  
Remote Control Cable×1

- Improvements may result in specifications and features changing without notice.



## ■ ALIGNMENT INSTRUCTIONS

### EQUIPMENT NEEDED:

AM Signal Generator  
FM Signal Generator  
Oscilloscope  
VTVM(AC, DC)  
Test loop antenna (AM Adjustment)  
Dummy antenna (FM Adjustment)  
Stereo signal modulator (RDS IN)  
Frequency counter  
Distortion analyser

### IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the signal input as low as possible to adjust accurately.
4. Modulation and modulation frequency.

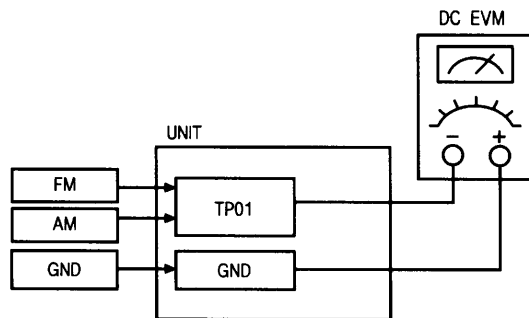
Band \ Item	Modulation	Modulation frequency
AM	30%	400Hz
FM	100% (75KHz Dev.)	400Hz



# MEASUREMENTS AND ADJUSTMENTS

## 1. TUNING FREQUENCY RANGE ADJUSTMENTS

(FM, AM) DC VOLTMETER .....CONNECT TO TEST POINT TP01 and GND

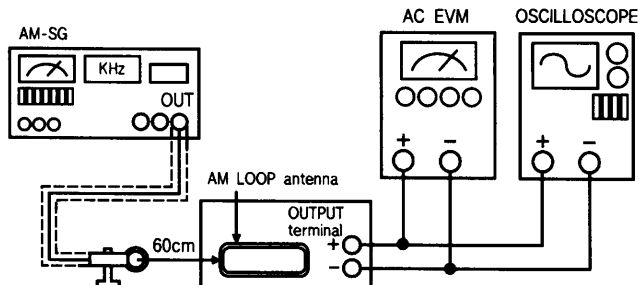


No	Band	Frequency	Adjust for	Adjustment
1	FM	87.50MHz	1.5V	L7
2	AM	522KHz	1V	L202

## 2. AM TRACKING ADJUSTMENT

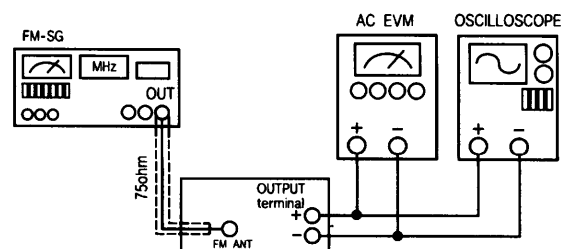
Signal Generator ..... Connects to the AM Ant. Coil through the loop antenna.  
Adjust for the indication of VTVM of the wave form of scope to be maximum.

BAND	Step	Frequency	Adjust for	Adjustment
AM	1	612KHz	Maximum sensitivity	L201, T201
	2	1503KHz	Maximum sensitivity	CT21
	3	Repeat steps 1 and 2 several times		



## 3. FM-RF ADJUSTMENT

Signal Generator ..... Connect to FM ANT JACK (FM IN) through the dummy.



No	Frequency	Adjust for	Adjustment
1	90.10MHz	Maximum Sensitivity	L2, L5, L6
2	Repeat step 1 several times		

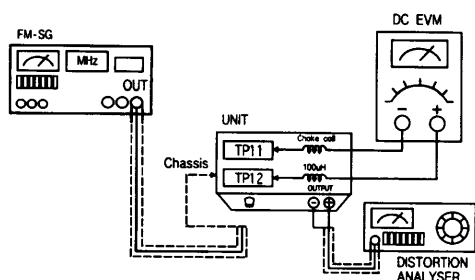


#### 4. FM MONO DISTORTION ADJUSTMENT

DC VOLT METER .....Connect to TP11(-), TP12(+) Through the choke coll (100 $\mu$ H)

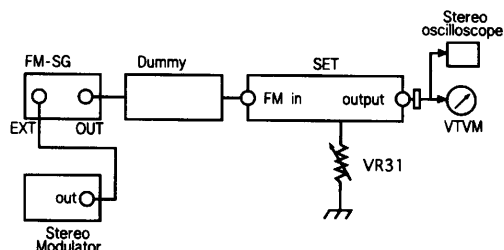
Signal Generator .....Connect to FM ANT Jack (FM IN) through the dummy.

Distortion Meter .....Connect to the output.



No	Frequency	Adjust for	Adjustment
1	100.10MHz	DC Voltmeter 0V	T101
2	100.10MHz	Minimum T. H. D	T102
3	Repeat steps 1 and 2 Several times.		

#### 5. FM STEREO SEPARATION



Pilot signal	Adjust for	Adjustment
ON	Different of R and L must be maximum	VR31

NOTE : In case of adjusting the stereo separation, of input is L (or R) channel, R (or L) channel must be maximum.

#### 6. FM/AM AUTO STOP LEVEL ADJUSTMENT

FM SIGNAL GENERATOR .....Connec to FM ANT Jack(FM IN)through the dummy

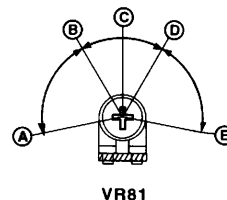
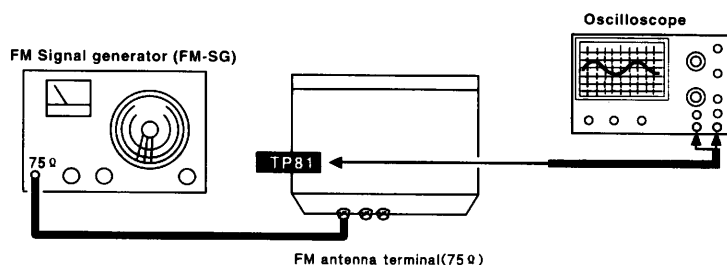
AM SIGNAL GENERATOR .....Connect to AM ANT, Coil through the Loop antenna

BAND	STEP	SIGNAL GENERATOR	Adjust for	Adjustment
FM	1	100.1MHz 35dB	<b>TUNED</b> Display OFF	VR11
	2	100.1MHz 35dB	<b>TUNED</b> Display ON	VR11
AM	1	999KHz 80dB	<b>TUNED</b> Display OFF	VR21
	2	999KHz 80dB	<b>TUNED</b> Display ON	VR21

#### 7. FM RDS ADJUSTMENT [EUR]

FM Signal Generator(RDS IN) .....Connect to FM ANT Jack(FM IN) through the dummy

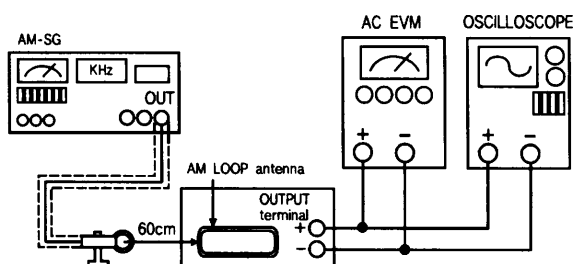
Oscilloscope .....Connect to TP81(+) GND(-)



- Ⓐ-Ⓑ, Ⓓ-Ⓔ : RDS OFF position.
- Ⓑ-Ⓓ : RDS ON position.  
(indicator lighting)
- Ⓒ : Adjust point of  
RDS circuit.  
(TP81 : 1.0~1.2V)



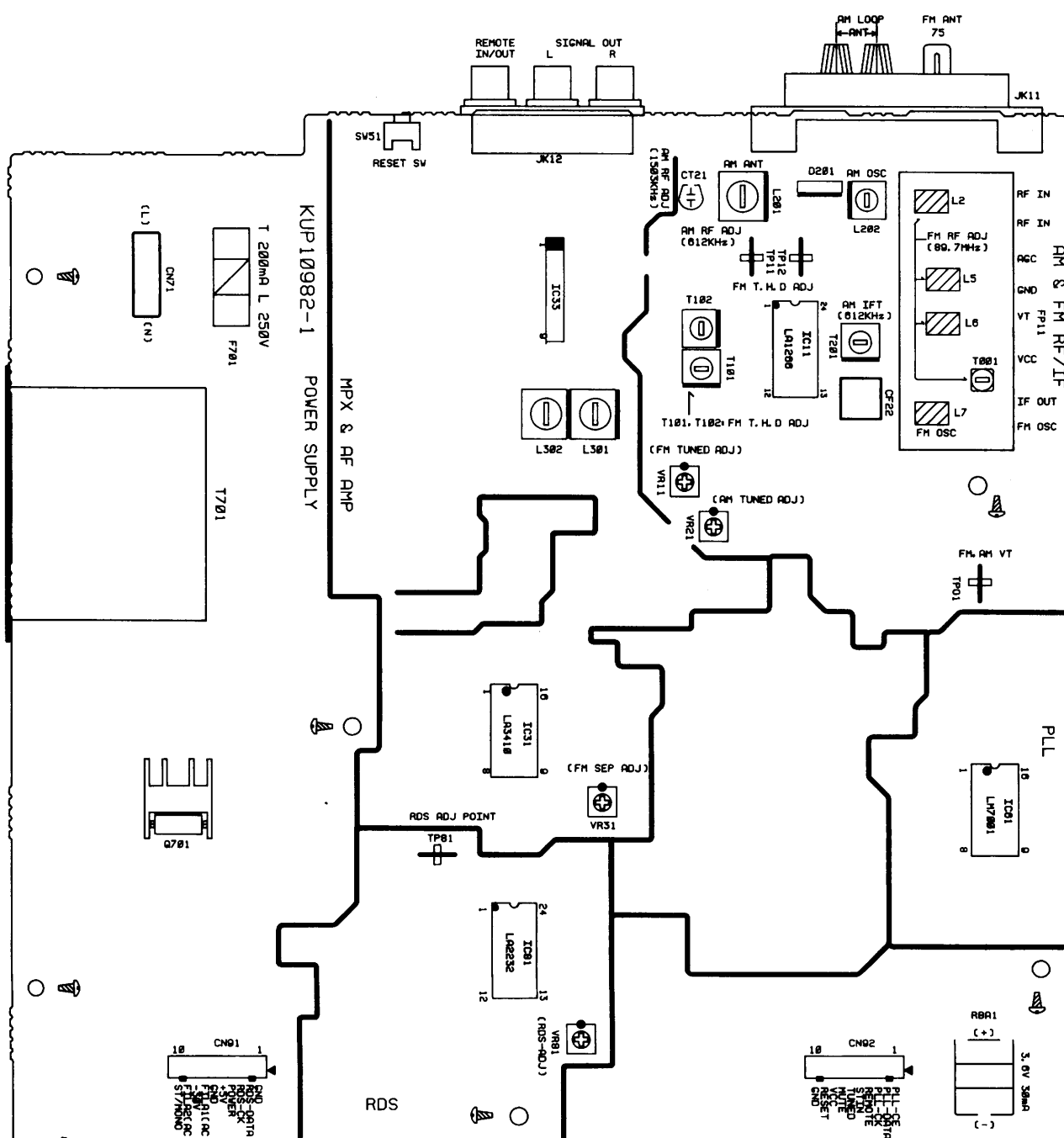
## 8. AM STEREO SEPARATION [DM]



Pilot Signal	Adjust for	Adjustment
ON	Different of R and L must be maximum	T201

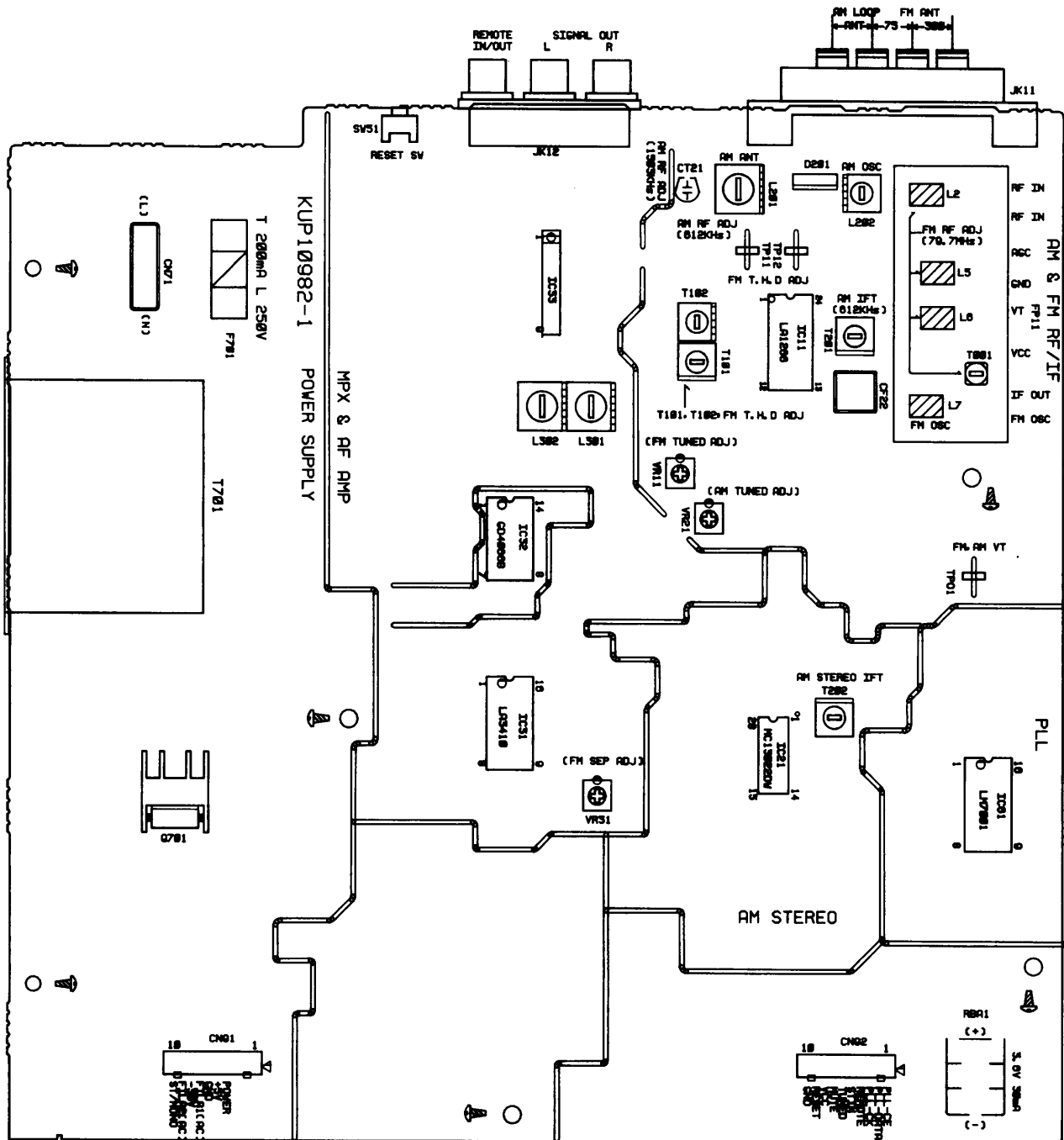
**NOTE :** In case of adjusting the stereo separation, of input is L (or R) channel, R (or L) channel must be maximum.

### ADJUSTMENT POINT [EUR]



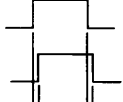
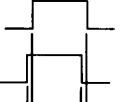
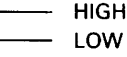


# ADJUSTMENT POINT [DM]



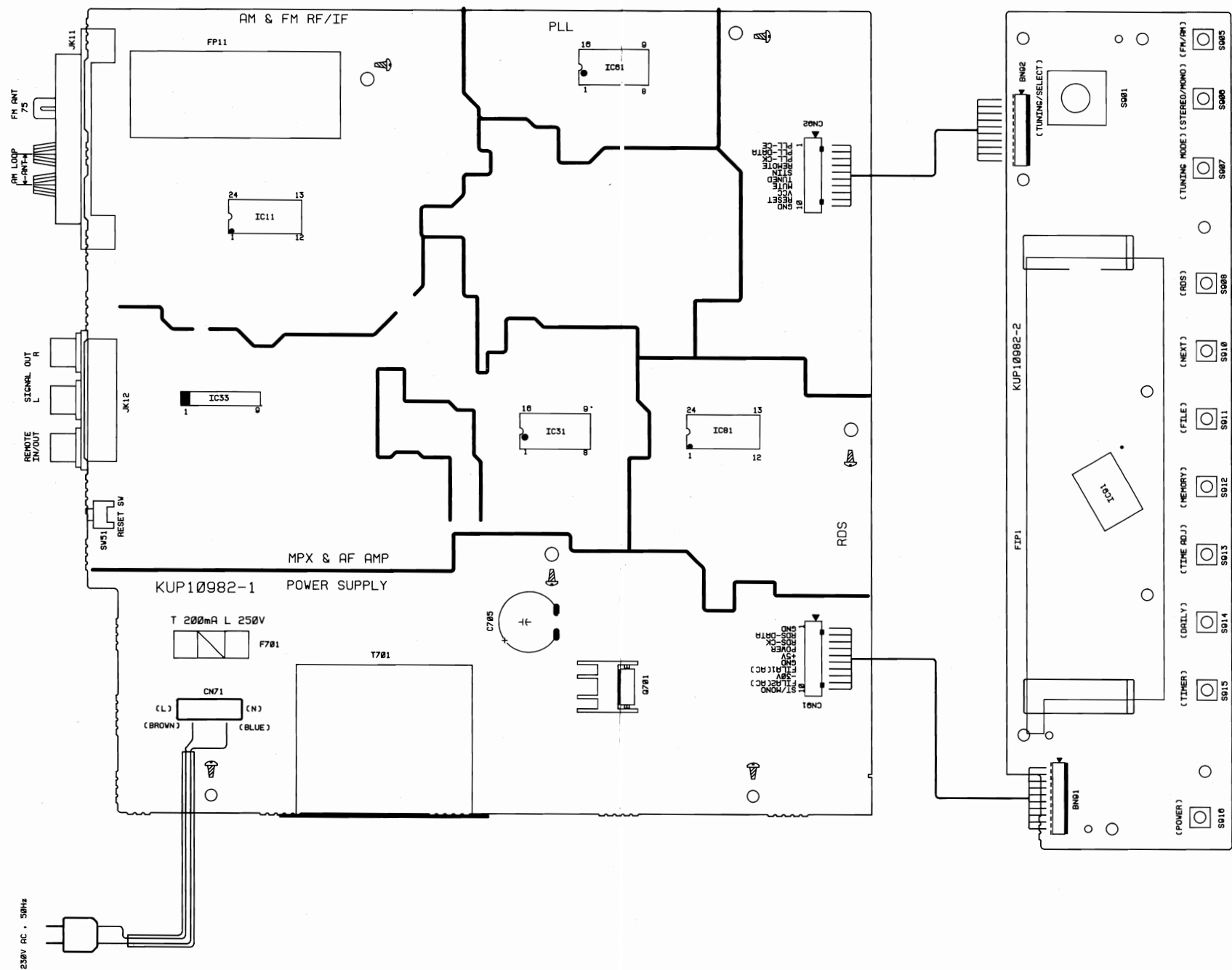


# IC FUNCTION

PIN No.	SYMBOL	IN/OUT	DESCRIPTION
1	REMOT IN	I	REMOTE CONTROL INPUT
2	VCC	I	VDD CONNECTION
3	BACK UP/ CE	I	BACK UP MODE CONTROL
4, 94	TUNING UP / DOWN	I	<div> <div> TUNING UP  </div> <div> TUNING DOWN  </div> <div>  </div> </div>
5	TUNED	I	TUNED DISPLAY INPUT
6, 7, 9, 10	N.C		NO CONNECTION
11	RDS DATA	I	RDS DATA INPUT
8, 12~14	AREA OPTION	I	12, GROUND (EUROPE)
15, 20	N.C		NO CONNECTION
16~19	KEY IN	I	KEY MATRIX INPUT
21~23	KEY OUT	O	KEY MATRIX OUTPUT
24	N.C		NO CONNECTION
25	POWER	O	TUNER POWER ON
26	MUTE	O	MUTE OUTPUT
27	MONO/STEREO	O	MONO/STEREO SWITCHING OUTPUT
28~37	N.C		NO CONNECTIN
38	RESET	I	RESET IN
39	EXTAL	O	8.0MHz CRYSTAL U-COM OPERATOR
40	XTAL	I	
41	VSS		GROUND
42	TX	I	32.768KHz CRYSTAL TIME OPERATOR
43	TEX	O	
44, 45	N.C		NO CONNECTION
46	AVREF		+4.8V VDD
47	AVSS		ANALOG GROUND
48~70	S0~S22	O	FIP SEGMENT OUTPUT
71~74	N.C		NO CONNECTION
75~87	G13~G0	O	FIP GRIDE OUTPUT
88	VFIP	I	FIP VDD : -30V
89, 90	VDD	I	+4.8V VDD
91	VSS		GROUND
92, 93	N.C		NO CONNECTION
95	STEREO	I	STEREO INPUT
96	PLL-CK	O	PLL SERIAL CLOCK OUTPUT
97	PLL-DI	O	PLL SERIAL DATA OUTPUT
98	PLL-CE	O	PLL SERIAL CHIP ENABLE OUTPUT
99	REMOTE OUT	O	REMOTE CONTROL OUTPUT
100	RES CK	I	RDS CLOCK INPUT

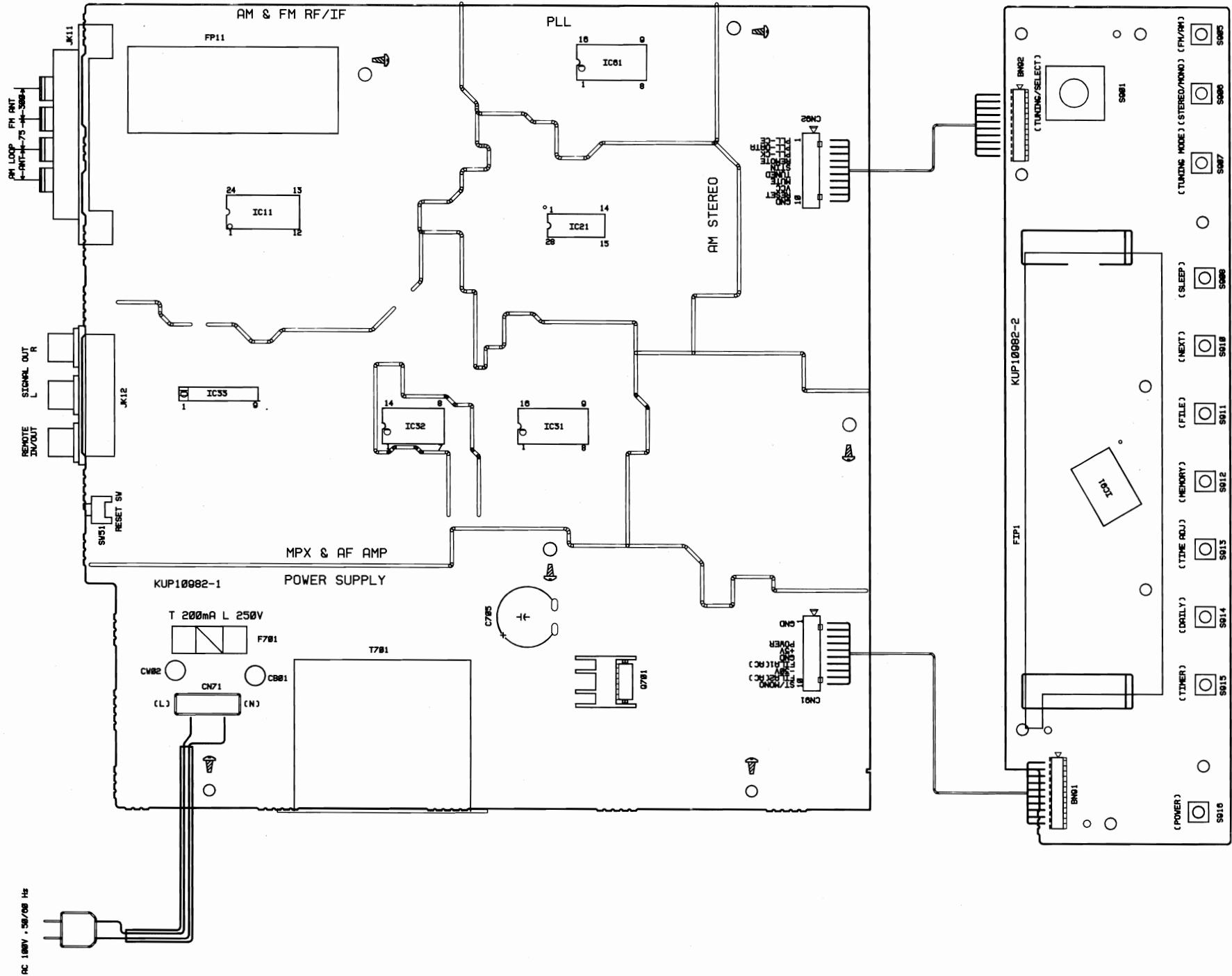


# WIRING DIAGRAM [EUR]





# WIRING DIAGRAM [DM]

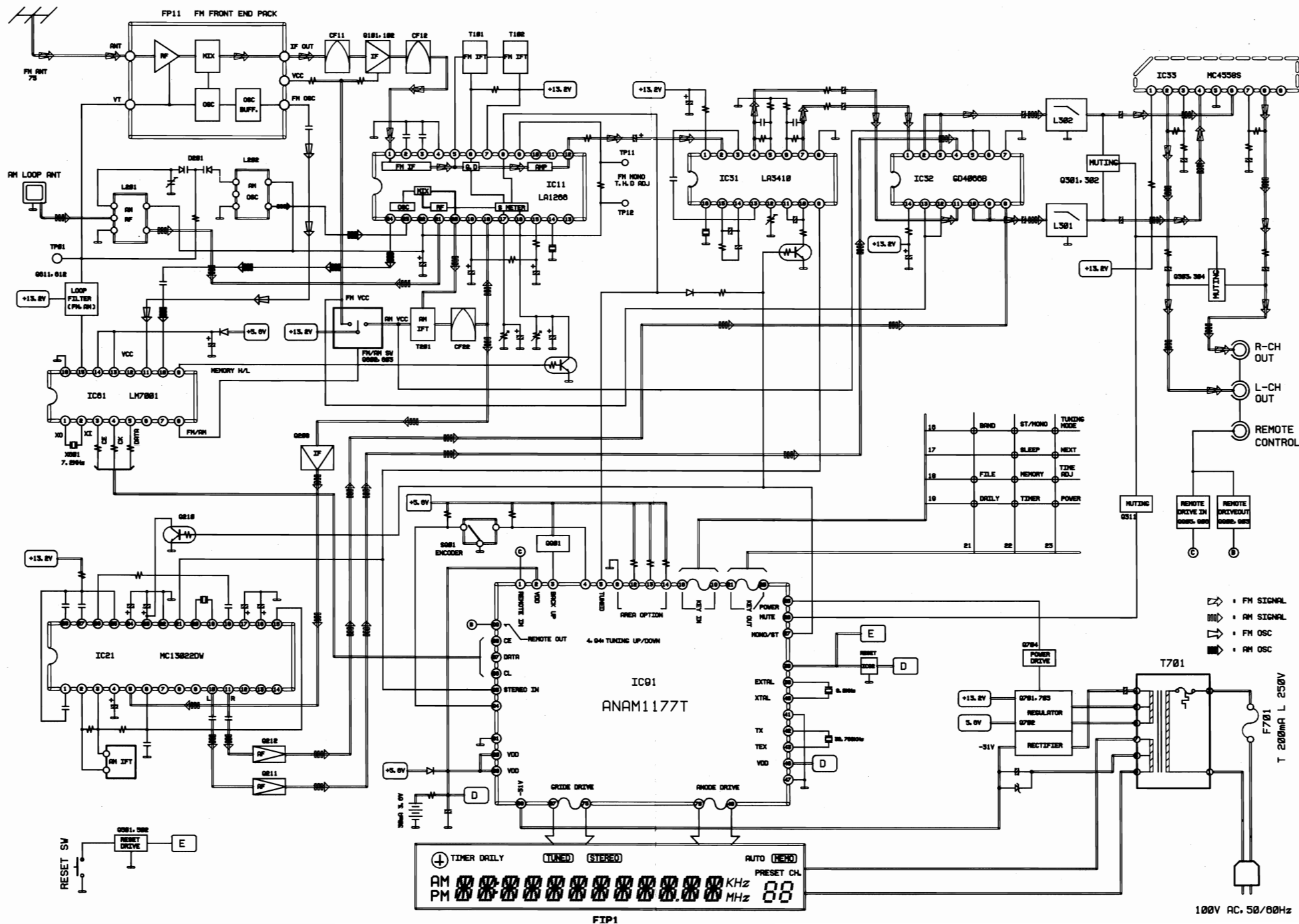






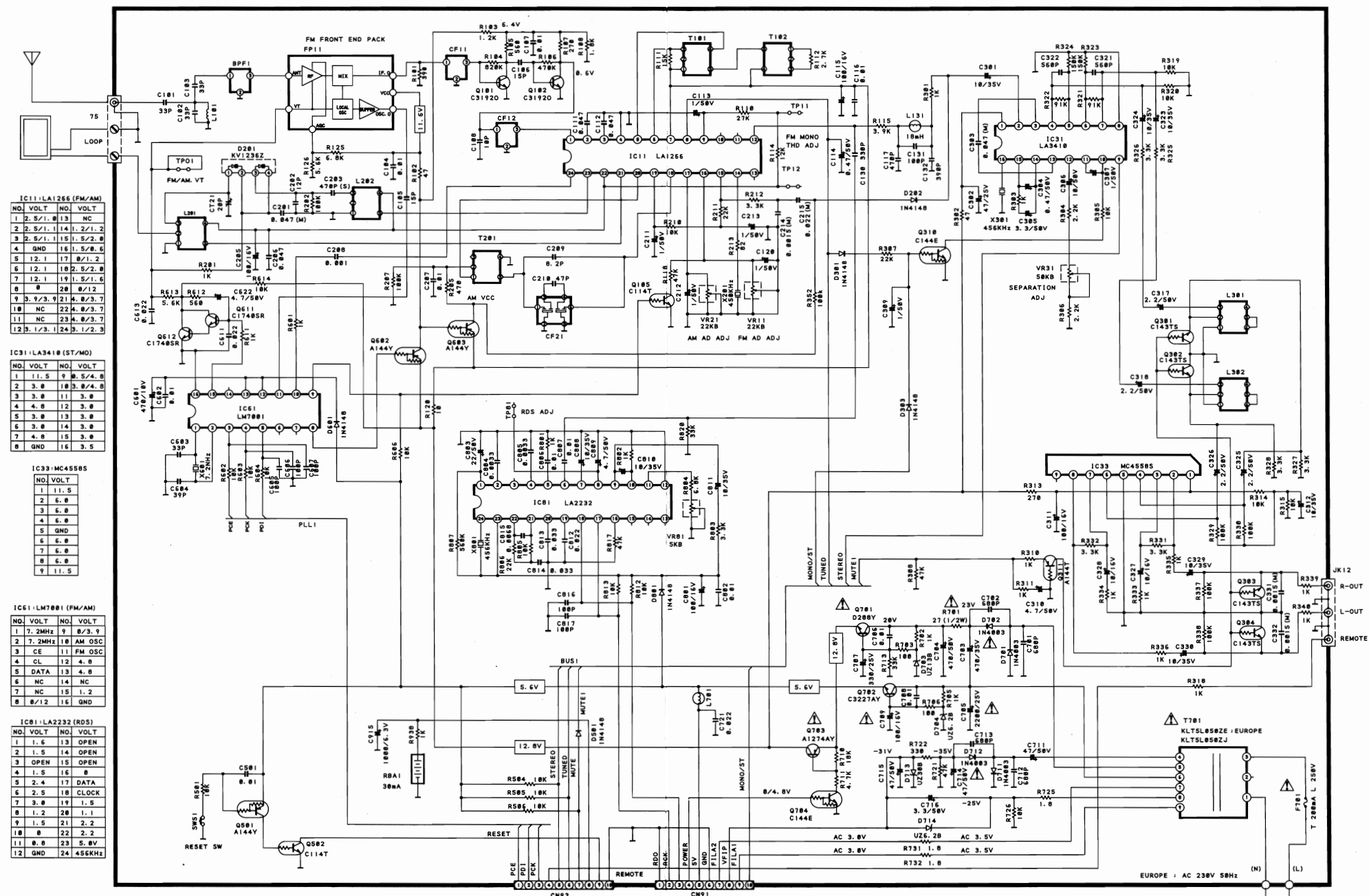


## BLOCK DIAGRAM [DM]

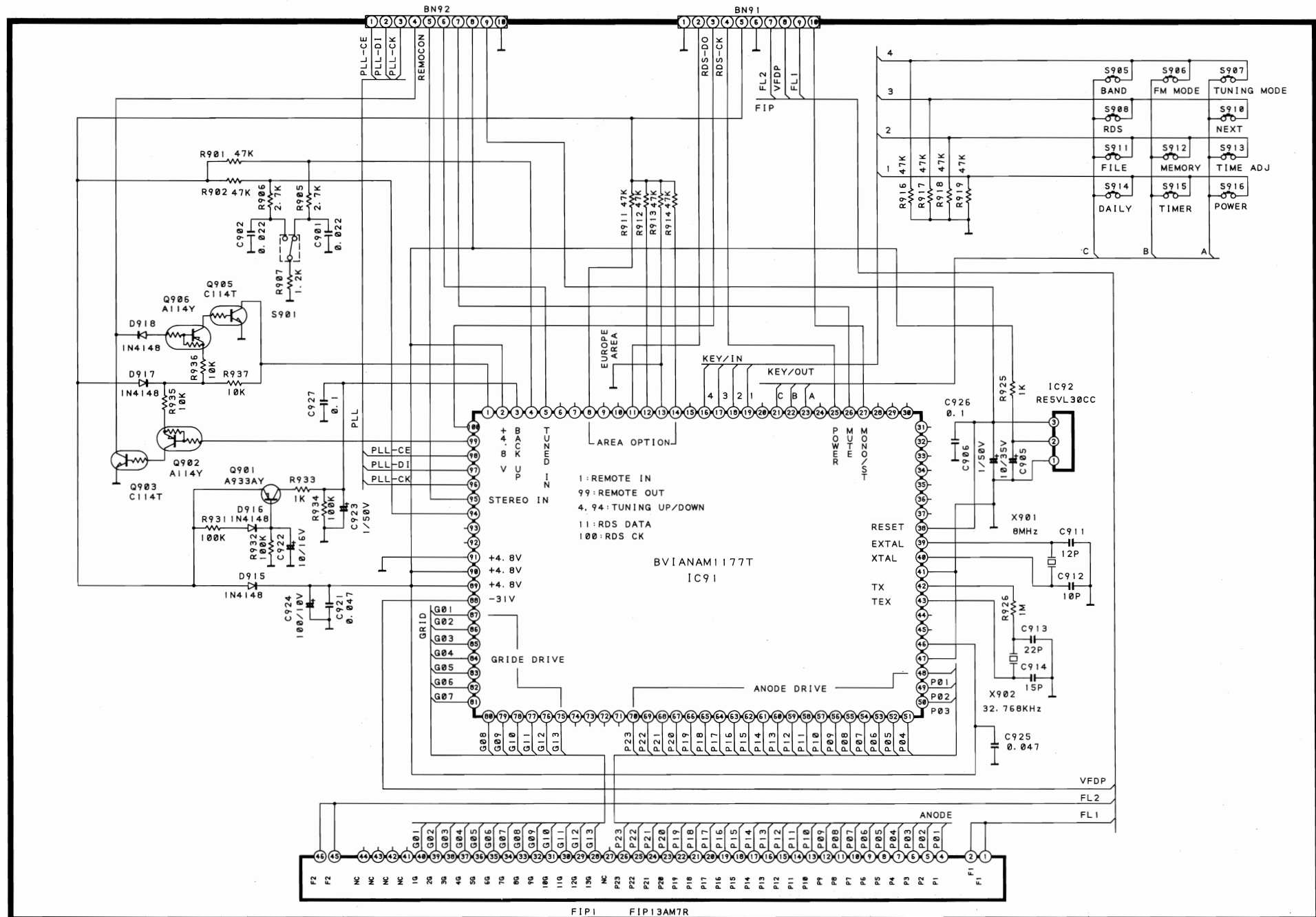




# SCHEMATIC DIAGRAM [EUR]

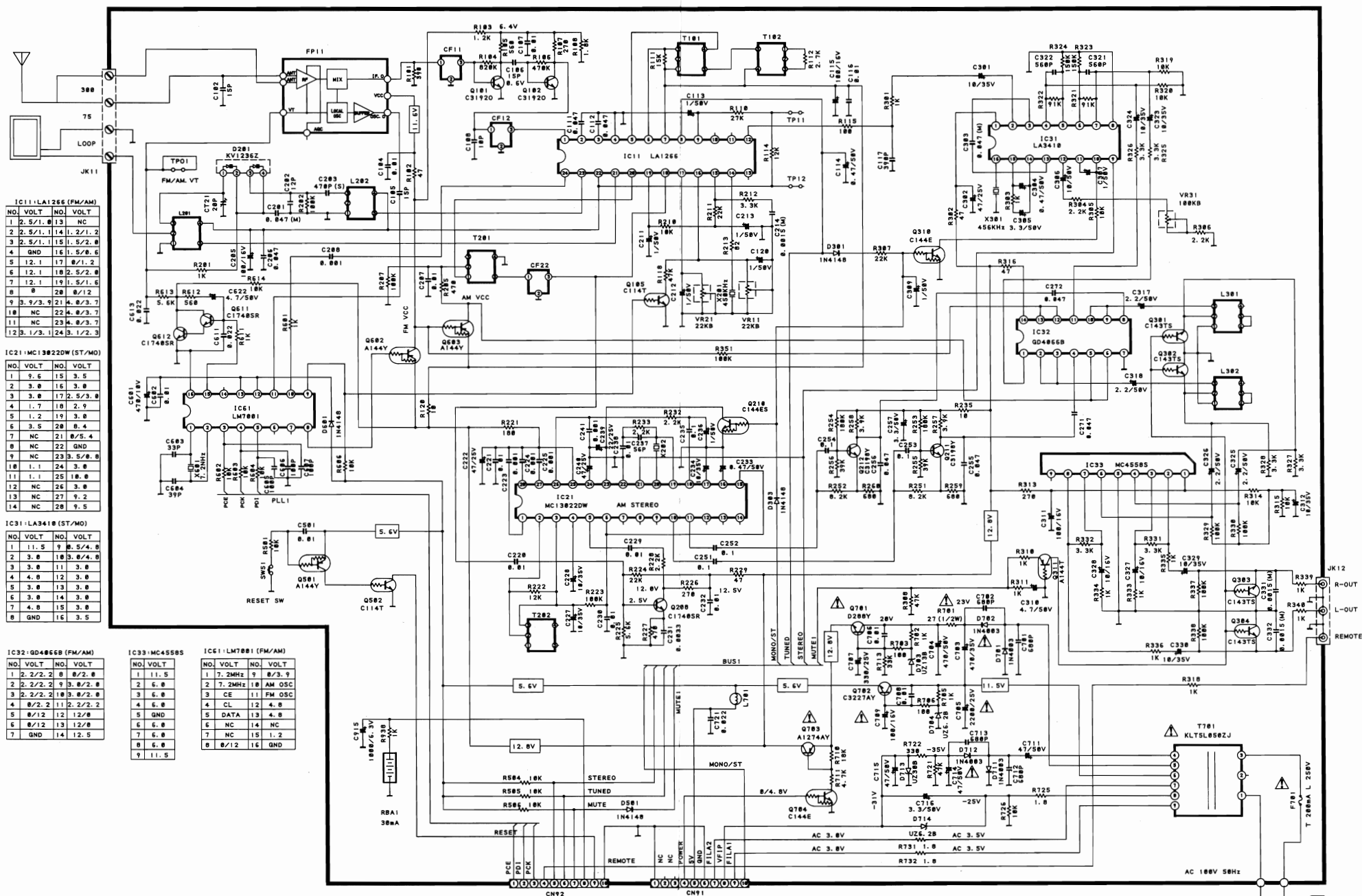




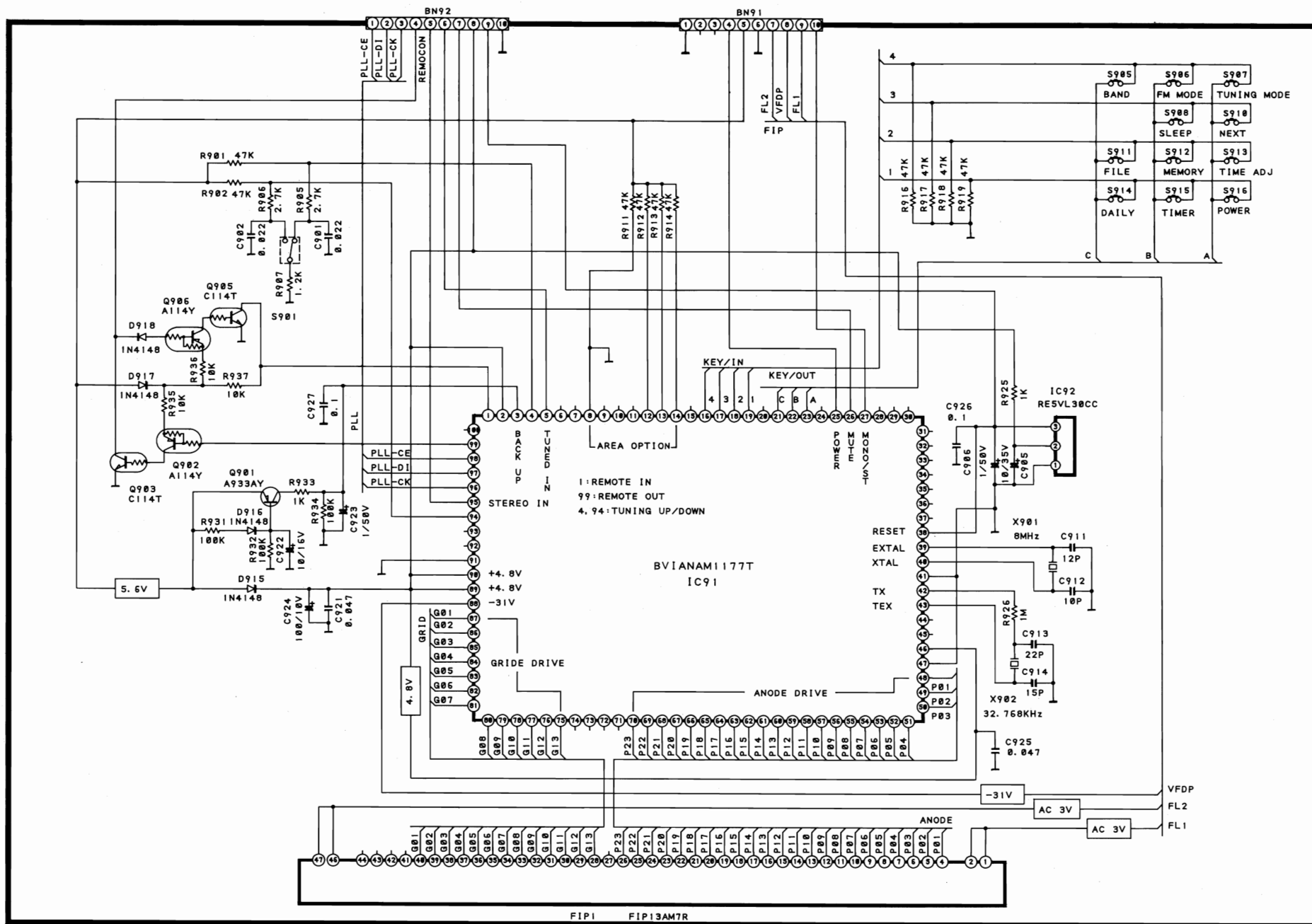




# SCHEMATIC DIAGRAM [DM]









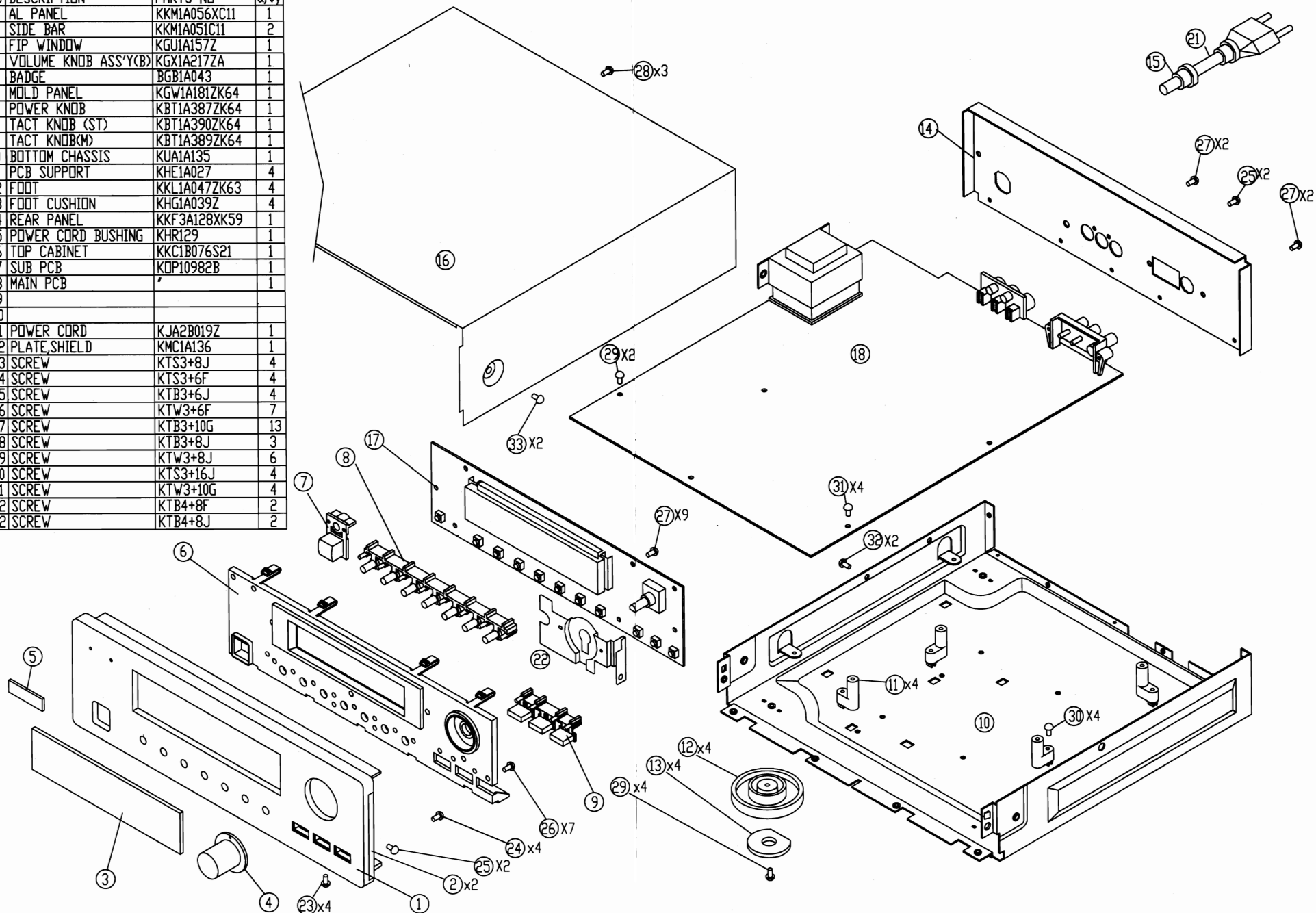
**COMPONENT VALUES TABLE**

COMPONENT	KOREA	EUROPE	JAPAN	USA
C101	100K	100K	100K	100K
C102	100K	100K	100K	100K
C103	100K	100K	100K	100K
C104	100K	100K	100K	100K
C105	100K	100K	100K	100K
C106	100K	100K	100K	100K
C107	100K	100K	100K	100K
C108	100K	100K	100K	100K
C109	100K	100K	100K	100K
C110	100K	100K	100K	100K
C111	100K	100K	100K	100K
C112	100K	100K	100K	100K
C113	100K	100K	100K	100K
C114	100K	100K	100K	100K
C115	100K	100K	100K	100K
C116	100K	100K	100K	100K
C117	100K	100K	100K	100K
C118	100K	100K	100K	100K
C119	100K	100K	100K	100K
C120	100K	100K	100K	100K
C121	100K	100K	100K	100K
C122	100K	100K	100K	100K
C123	100K	100K	100K	100K
C124	100K	100K	100K	100K
C125	100K	100K	100K	100K
C126	100K	100K	100K	100K
C127	100K	100K	100K	100K
C128	100K	100K	100K	100K
C129	100K	100K	100K	100K
C130	100K	100K	100K	100K
C131	100K	100K	100K	100K
C132	100K	100K	100K	100K
C133	100K	100K	100K	100K
C134	100K	100K	100K	100K
C135	100K	100K	100K	100K
C136	100K	100K	100K	100K
C137	100K	100K	100K	100K
C138	100K	100K	100K	100K
C139	100K	100K	100K	100K
C140	100K	100K	100K	100K
C141	100K	100K	100K	100K
C142	100K	100K	100K	100K
C143	100K	100K	100K	100K
C144	100K	100K	100K	100K
C145	100K	100K	100K	100K
C146	100K	100K	100K	100K
C147	100K	100K	100K	100K
C148	100K	100K	100K	100K
C149	100K	100K	100K	100K
C150	100K	100K	100K	100K
C151	100K	100K	100K	100K
C152	100K	100K	100K	100K
C153	100K	100K	100K	100K
C154	100K	100K	100K	100K
C155	100K	100K	100K	100K
C156	100K	100K	100K	100K
C157	100K	100K	100K	100K
C158	100K	100K	100K	100K
C159	100K	100K	100K	100K
C160	100K	100K	100K	100K
C161	100K	100K	100K	100K
C162	100K	100K	100K	100K
C163	100K	100K	100K	100K
C164	100K	100K	100K	100K
C165	100K	100K	100K	100K
C166	100K	100K	100K	100K
C167	100K	100K	100K	100K
C168	100K	100K	100K	100K
C169	10			



# EXPLODED VIEW

NO	DESCRIPTION	PARTS-NO	Q.ty
1	AL PANEL	KKM1A056XC11	1
2	SIDE BAR	KKM1A051C11	2
3	FIP WINDOW	KGU1A157Z	1
4	VOLUME KNOB ASS'Y(B)	KGX1A217ZA	1
5	BADGE	BGB1A043	1
6	MOLD PANEL	KGW1A181ZK64	1
7	POWER KNOB	KBT1A387ZK64	1
8	TACT KNOB (ST)	KBT1A390ZK64	1
9	TACT KNOB(M)	KBT1A389ZK64	1
10	BOTTOM CHASSIS	KUA1A135	1
11	PCB SUPPORT	KHE1A027	4
12	FOOT	KKL1A047ZK63	4
13	FOOT CUSHION	KHG1A039Z	4
14	REAR PANEL	KKF3A128XK59	1
15	POWER CORD BUSHING	KHR129	1
16	TOP CABINET	KKC1B076S21	1
17	SUB PCB	KDP10982B	1
18	MAIN PCB		1
19			
20			
21	POWER CORD	KJA2B019Z	1
22	PLATE SHIELD	KMC1A136	1
23	SCREW	KTS3+8J	4
24	SCREW	KTS3+6F	4
25	SCREW	KTW3+6J	4
26	SCREW	KTW3+6F	7
27	SCREW	KTW3+10G	13
28	SCREW	KTW3+8J	3
29	SCREW	KTW3+8J	6
30	SCREW	KTW3+16J	4
31	SCREW	KTW3+10G	4
32	SCREW	KTW4+8F	2
32	SCREW	KTW4+8J	2





**EXPLODED VIEW [T-H500]**

Ref. No.	Part No.	Description	Remarks
1	9A06259800	PANEL, AL [DM]	
	9A06555000	PANEL, AL [EUR]	
2	9A06251600	BAR, SIDE	
3	9A06258900	WINDOW	
4	9A06228300	VOLUME CAP ASS'Y (B)	
5	9A06224200	BADGE, TEAC	
6	9A06317600	PANEL, MOLD AT-77	
7	9A06314500	KNOB, POWER	
8	9A06317500	KNOB, TACT	
9	9A06317400	KNOB, TACT	
10	9A06317700	BUTTON CHASSIS	
11	9A06259200	SUPPORT, PCB	
12	9A06315500	FOOT	
13	9A06229300	CUSHION, FOOT	
14	9A06259600	PANEL, REAR [DM]	
	9A06317200	PANEL, REAR [EUR]	
15	9A01376900	BUSHING, AC CORD HEYCO(SR-5N-4)	
16	9A06251100	CABINET, TOP	
17,18	9A06260400	TUNER PCB ASS'Y [DM]	
	9A06260410	TUNER PCB ASS'Y [EUR]	
21	9A06242000	CORD, POWER [DM]	
	9A05328100	CORD, POWER [EUR]	
22		PALTE, SHIELD	
23	9A01397400	SCREW, KTS3+8J	
24	9A06229000	SCREW, SPECIAL	
25	9A01532600	SCREW, KTB3+6J	
26	9A06234700	SCREW, KTW3+6F	
27	9A01377400	SCREW, KTB3+10G	
28	9A01377200	SCREW, KTB3+8JFZ	
29	9A05339200	SCREW, KTW3+8J	
30	9A01377400	SCREW, KTB3+10G	
31	9A06555100	SCREW, KTB3+12G	
32	9A01477800	SCREW, KTB4+8J	
33	9A05984300	SCREW, KTB4+6FFZ	

**INCLUDED ACCESSORIES**

Ref. No.	Part No.	Description	Remarks
	9A06054000	MANUAL, INSTRUCTION, JAPAN	
	9A06054400	MANUAL, INSTRUCTION, MULTI	



# ELECTRICAL PARTS LIST

Ref. No.	Part No.	Description
BAT1	9A04880100	BATTERY, RECHARGEABLE
BPF1	9A05195100	B.P.F. 87.5-108MH [EUR]
BN91,92	9A06261900	WIRE ASS'Y
C203	9A01507300	C, STYROLE 470PF/50V
C703	9A06258800	C, ELECT
C704	9A06171800	C, ELECT
C705	9A01402000	C, ELECT 2200UF/25V
CF11, 12	9A01407600	FILTER, CERAMIC FM 10.7MHZ
CF21	9A01407700	FILTER, CERAMIC SFZ450F [EUR]
CF22	9A06258300	FILTER, CERAMIC SFG450E [DM]
CN71	9A05329000	WAFER MOLEX35309-0210
CN91,92	9A05330700	WAFER MOLEX 53014-1010
CT21	9A01405900	C, VARIABLE 20PF A020S12
D201	9A01405200	DIODE, KV1236Z TOKO
D202	9A01390500	DIODE, 1N4148MT
D301,303	9A01390600	DIODE, 1N4148T
D501	9A01390600	DIODE, 1N4148T
D601	9A01390500	DIODE, 1N4148MT
D701,702	9A05194600	DIODE, 1N4003SRT
D703	9A05902000	DIODE, ZENER, 13V
D704	9A05902300	DIODE, ZENER, 6.2V
D711,712	9A05194600	DIODE, 1N4003SRT
D713	9A05902200	DIODE, ZENER, 30V
D714	9A05902300	DIODE, ZENER, 6.2V
D801	9A01390600	DIODE, 1N4148T
D901	9A01390500	DIODE, 1N4148MT
D915-918	9A01390500	DIODE, 1N4148MT
F701	9A05911100	FUSE, 200MAL/250V
FIP1	9A06258000	F.I.P FIP13AM7R
FP11	9A05938700	PACK, TUNER [EUR]
	9A06260300	PACK, FM FTA4J508H [DM]
IC11	9A05938800	IC, LA1266
IC21	9A06258500	IC, AM STEREO MC13022DW
IC31	9A05938900	IC, LA3410
IC32	9A06261600	IC, GD4066B
IC33	9A05195800	IC, KA4558S
IC61	9A04323300	IC, LM7001
IC81	9A05939100	IC, LA2232
IC91	9A06258400	IC, TUNER U-COM CXP82432
IC92	9A05317300	IC, (RESET) RE5VA30CC

Ref. No.	Part No.	Description
JK11	9A04875900	TERMINAL, ANT DC-D2100
JK11	9A06259400	TERMINAL , ANT 75/300
JK12	9A06259500	TERMINAL , RCA JACK
JW11	9A06171900	WIRE ASS'Y
L101	9A04875000	COIL, FILTER DC-D2100
L131	9A04883300	COIL [EUR]
L201	9A06259900	COIL , AM ANT2
L202	9A05332500	COIL , AM OSC 2B008Z
L211	9A06274000	COIL, 02C6R8KT [EUR]
L301,302	9A01407300	COIL, MPX
L701	9A03746700	COIL, INDUCTOR
Q101,102	9A05197300	TR, KTC3192OT
Q105	9A05911500	TR, DTC114TS
Q208	9A05197300	TR, KTC3192OT
Q210	9A06066800	TR, DTC144EST
Q211,212	9A05892800	TR, KTC3198YT
Q301,302	9A06261800	TR, DTC143TST
Q303,304	9A06261800	TR, DTC143TST
Q310	9A06066800	TR, DTC144EST
Q311	9A06261700	TR, DTA144TST
Q501	9A05196400	TR, DTA114YST
Q502	9A05911500	TR, DTC114TS
Q602,603	9A05196400	TR, DTA114YST
Q611,612	9A05939500	TR, 2SC1740SR
Q701	9A05937400	HEAT SINK ASSY
Q702	9A05939600	TR, KTC3227Y
Q703	9A05939700	TR, KTA1274Y
Q704	9A06066800	TR, DTC144EST
Q901	9A05911600	TR, 2SA933SR
Q902	9A05196400	TR, DTA114YST
Q903,905	9A05911500	TR, DTC114TS
Q906	9A05196400	TR, DTA114YST
R701	9A06317800	R., FUSIBLE 27-OHM/0.5W
S901	9A06258100	ENCODER , VR EC16B24104
S905-916	9A04882500	SW, TACT SKHV10910A
SW51	9A04882400	SW, TACT DC-D2100
T101	9A05940200	IFT, FM, KLI3B020-G
T102	9A05940300	IFT, FM, KLI3B021-G
T201	9A05939400	IFT, AM [EUR]
T201	9A06260100	I.F.T , AM 2B105-G [DM]
T202	9A06260000	I.F.T , AM 2B104-G
T701	9A06260200	TRANS, POWER [DM]
T701	9A06317900	TRANS, POWER [EUR]
VR11,21	9A05317700	VR, SEMI FIX EVNDJAA03B24
VR31	9A05317500	R, SEMI FIXED EVNDJAA03B15 [DM]
		R, SEMI FIXED EVNDJAA03B54 [EUR]
VR81	9A05940500	R, SEMI FIXED EVNDJAA03B53



Ref. No.	Part No.	Description
X201	9A05940600	RESONATOR,BFU450C4N
X202	9A06258200	RESONATOR,CSA3.60MGF103
X301	9A05317200	RESONATOR,CERAMIC CSB456F11
X601	9A04874300	CRYSTAL, DC-D2100
X801	9A05940800	RESONATOR,CERAMIC CSB456F33
X901	9A05193000	CRYSTAL, DC-D1800
X902	9A05188800	CRYSTAL 32.768KHZ DT-38

Ref. No.	Part No.	Description
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